

WE CLAIM:

1. A location calculation method for calculating, by using propagation delay time of signals received from a plurality of wireless transmitters, a location of a reception point of receiving the signals, comprising:

a first step of measuring reception timing of signals received from said wireless transmitters;

a second step of estimating, according to results of measurement of the reception timing obtained by said first step, an erroneous result of measurement; and

a third step of removing the results of measurement estimated as the erroneous results by the second step from the results of measurement of the reception timing obtained by said first step, and thereby calculating the location of said reception point.

2. A location calculation method for calculating according to claim 1, wherein said second step includes estimating, according to a result of a comparison between an S/N ratio of a signal for which the reception timing is measured and a predetermined threshold value, the result of measurement regarding the signal as an erroneous result of measurement

3. A location calculation method for calculating according to claim 1, further comprising a step of determining a standard wireless transmitter among a

plurality of wireless transmitters from which signals are received by the reception point, wherein

said second step includes estimating; according to a result of a determination whether or not a triangle is formed using distance between the reception point and the standard wireless transmitter, distance between the reception point and a wireless transmitter used as an object of the estimation, and distance between the standard wireless transmitter and the wireless transmitter used as an object of the estimation; that the result of measurement of any wireless transmitter used as an object of the estimation not satisfying the triangle forming condition is an erroneous result of measurement.

4. A location calculation method for calculating according to claim 1, wherein:

a plurality of sectors each of which is formed by the wireless transmitter constitute a wireless facility; and

said second step includes estimating, according to a result of a comparison between a result of measurement of distance regarding each sector of one wireless facility and a predetermined threshold value, the result of measurement regarding the wireless facility as an erroneous result of measurement.

5. A location calculation method for calculating according to claim 4, wherein the result of measurement of distance regarding each sector is compared as

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difference between delayed time of the respective sector with a predetermined threshold value.

6. A location calculation method for calculating according to claim 1, wherein:

a plurality of sectors each of which is formed by the wireless transmitter constitute a wireless facility; and

said second step includes selectively estimating, according to a result of a comparison between S/N ratios regarding the respective sectors of one wireless facility, the result of measurement regarding a sector having a smaller S/N ratio or a sector having longer delay time between the sectors as an erroneous result of measurement.

7. A location calculation method for calculating according to claim 1, further comprising a step of calculating a direction of a wireless transmitter from the reception point, wherein

said second step selecting wireless transmitters existing within a predetermined angle by using the direction of the wireless transmitter as a standard direction, obtaining difference between distance between the reception point and a first wireless transmitter selected as one existing in a near direction and distance between the reception point and a second wireless transmitter, comparing the difference with a predetermined threshold value, and estimating the result of measurement of the wireless transmitter

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according to a result of the comparison.

8. A location calculation method for calculating according to claim 7, wherein the difference between the distance between the reception point and the first wireless transmitter and the distance between the reception point and the second wireless transmitter is compared, as difference in delay time between a signal received from the first wireless transmitter and a signal received from the second wireless transmitter, with a predetermined threshold value.

9. A location calculation method for calculating according to claim 7, further comprising a step of estimating a wireless transmitter nearest to the reception point, removing information associated with a signal received from the nearest wireless transmitter, and selecting wireless transmitters existing in one direction.

10. A location calculation method for calculating according to claim 1, wherein said second step includes calculating a position of the reception point and likelihood by excepting a result of measurement of a particular wireless transmitter, selecting a maximum value of the calculated values of likelihood, comparing the maximum likelihood value with other values of likelihood, and estimating, according to a result of the comparison, the result of measurement of the particular wireless transmitter associated with the maximum likelihood value as an erroneous result of

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measurement.

11. A location calculation apparatus for calculating, by using propagation delay time of signals received from a plurality of wireless transmitters, a location of a reception point of receiving the signals, comprising:

reception timing measuring means for measuring reception timing of signals received from said wireless transmitters;

erroneous measurement estimating means for estimating, according to results of measurement of the reception timing measured by said reception timing measuring means, erroneous results of measurement; and

location calculating means for removing the results of measurement estimated as the erroneous results by said erroneous measurement estimating means from the results of measurement of the reception timing obtained by said reception timing measuring means, and thereby calculating the location of said location calculating means.

12. A software product to make a computer execute a location calculation method for calculating, by using signals received from a plurality of points, a location of a reception point of receiving the signals, comprising:

a first step of measuring reception timing of signals received from said points;

a second step of estimating, according to

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results of measurement of the reception timing obtained by said first step, an erroneous result of measurement; and

a third step of removing the results of measurement estimated as the erroneous results by the second step from the results of measurement of the reception timing obtained by said first step, and thereby calculating the location of said reception point.

13. A software product according to claim 12, further comprising a step of calculating, according to propagation delay time of signals received from the points, the location of the reception point of the signal.

14. A software product according to claim 12, wherein the points are wireless transmitters.

15. A software product according to claim 12, wherein the computer serves as a location calculating apparatus.

16. A control apparatus comprising a central processing unit (CPU) and a memory to store a program, wherein:

said memory has stored a program to make the CPU execute

a first step of measuring reception timing of signals received from a plurality of wireless transmitters;

a second step of estimating, according to

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results of measurement of the reception timing obtained by said first step, an erroneous result of measurement; and

a third step of removing the results of measurement estimated as the erroneous results by the second step from the results of measurement of the reception timing obtained by said first step, and thereby calculating the location of said reception point; and

said CPU executes said program kept stored in said memory.

17. A control apparatus according to claim 16, wherein said control apparatus is constructed as a semiconductor integrated circuit.

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